Figure A1: KPI Tree index
Figure A2: Global KPI tree

Legend
- Above the Benchmark
- Between Target & Benchmark
- Between Target & Threshold
- Under Threshold

Global Honeywell KPI
- 26.68
- 4.65
- 37.50
- 46.9

- SBU PlantScrape Systems
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- MBA PlantScrape Systems
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- AAA BYS 1 PlantScrape Systems
  - MTBF_A = 24 months
  - MTBF_B = < 24 months

- AAA BYS 2 PlantScrape Systems
  - MTBF_A = 24 months
  - MTBF_B = < 24 months

- DOU FSC Systems
  - MTBF_A = 27 months
  - MTBF_B = < 27 months

- NBA 1 FSC System
  - MTBF_A = 27 months
  - MTBF_B = < 27 months

- NBA 2 FSC System
  - MTBF_A = 27 months
  - MTBF_B = < 27 months

- EBI Access Control
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- EBI IWAC
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- EBI FSC System
  - MTBF_A = 24 months
  - MTBF_B = < 24 months

- TaskFarm FSC System
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- Network
  - MTBF_A = 37 months
  - MTBF_B = < 37 months

- AAS
  - MTBF_A = 1 month
  - MTBF_B = < 1 month
### Figure A3: KPI History

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| Global KPI (Honeywell) | 94.20% | 94.18% | 94.18% | 96.40% | 96.40% | 96.40% | 96.40% | 97.20% | 97.20% | 97.09% | 96.70% | 96.70% | 96.66% | 96.56% | 96.70% |

![Honeywell Global KPI Chart](chart.png)
Figure A4: PHD KPI tree
Figure A5: PlantScape KPI tree
Figure A8: AlertManager KPI tree
Figure A9: LoopScout KPI tree
# ANNEXURE B  DVC6000 VALVE SIGNATURE

## Valve Sheet [593-FV-30026]

**Valve**
- **Type:** EZ3
- **Size:** 3"3/4
- **Class:** 300
- **Rated Travel:** 75.0 in
- **Actual Travel:** 0.75 in
- **Stem Diameter:** 0.375 in
- **Inlet Pressure:** Unbalanced
- **Outlet Pressure:** Unbalanced

**Valve Style:** PD

**Valve Spec Sheet [593-FV-30026]**

- **Valve Manufacturer:** Fisher
- **Seat Type:** Metal
- **Port Diameter:** Unbalanced
- **Effective Area:** 69.0 in²
- **Air:** 69.0 in²
- **Flow Direction:** Up
- **Flow Tend:** Open
- **Nominal Supply Pressure:** 215.0 kPa
- **Valve Style:** PD
- **Instrument S/N:** 0016407145
- **Firmware Revision:** L17500

## Actuator Sheet [593-FV-30026]

**Actuator Manufacturer:** DVC6000

**Actuator Spec Sheet [593-FV-30026]**

- **Actuator Model:** DVC6000
- **Actuator Type:** 667
- **Valve Size:** 34
- **Spring Rate:** 1.44
- **Upper Bench Set:** 207.0 kPa
- **Lower Bench Set:** 117.0 kPa
- **Nominal Supply Pressure:** 215.0 kPa
- **Air:** 69.0 in²
- **Flow Direction:** Up
- **Flow Tend:** Open
- **Nominal Supply Pressure:** 215.0 kPa

## Step Response [593-FV-30026]

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ValveLink QuickReport
June 14, 2005
14:36:37

Total Scan [593-FV-30026]

Inputs
Input Start: -5.0 %
Input End: 155.0 %
Scan Time: 50.0 sec
Collection Interval: 150.0 msec.

Analyzed Data
Ave. Dynamic Error: 2.05%
Min. Dynamic Error: 0.79%
Max. Dynamic Error: 2.47%
Dyn. Linearity (Ind.): 0.64%
Zero Ranged Travel at: 3.94 mA
Full Ranged Travel at: 20.06 mA
Average Friction: 23 lbf
Minimum Friction: 10 lbf
Maximum Friction: 34.66 lbf
Spring Rate: 965.96 lbf/in
Bench Set: 1922.14 – 27.28 psi
Seat Load As Tested: 1080.26 lbf
Service Seat Load: NA
Required Seat Load: NA
Expected Packing Friction: 38 lbf
Expected Total Friction: 38 lbf

Tuning Set
Tuning Set: F
Gains
Proportional: 6.20
Integral: 3.10
MLF: 35.00
Integral Control: Disabled
Integral Gain: 9.4

Notes

Valve
Manufacturer: Fisher
Type: EZ
Size: 1 in
Class: 300
Rated Travel: 75.0 In
Actual Travel: 0.75 In
Stem Diameter: 0.375 In
Packing Type: TFE / Single
Inlet Pressure: 
Outlet Pressure: 

Trim
Seat Type: Metal
Leakage Class: IV
Port Diameter: Unbalanced
Flow Direction: Up
Push Down To: Close
Flow Tends To: Open
Unbalanced Area:

Actuator
Manufacturer: Fisher
Type: 667
Size: 34
Effective Area: 0.090 in²
Air: Opens
Lower Bench Set: 117.0 kPa
Upper Bench Set: 207.0 kPa
Nominal Supply Pressure: Spring Rate:
Figure B1: DVC6000 valve signature
### ANNEXURE C  ASSET MAINTENANCE BLUEPRINT

![Asset Maintenance Blueprint](image)

**Figure C1: Asset maintenance blueprint**
ANNEXURE D  MAINTENANCE PROCEDURE

PHD Maintenance Procedure

Introduction

This document provides the system administrator with a standard work procedure to determine whether PHD is functioning correctly on the local machine where PHD is installed.

Purpose

This document is to be used as a quick reference. It defines the various maintenance tasks that need to be performed on a Historian PHD system. This procedure will set a standard on the tasks to be executed for preventative maintenance on all Historian PHD systems.

Scope

This document is intended for the use of the Honeywell support personnel, both locally at the SASOL site as well as where offsite work is to be performed, it can also be distributed to offsite customers where Honeywell support personnel delivered services as part of ongoing support.

System maintenance Procedure

PHDMAN command window

- Log on to the PHD server locally or with a remote access tool.
- Open a command window and type “phdman” to open the PHD Management console.
- To change from the current window back to the phdman prompt you need to press ‘ctrl c’ on the keyboard or open a new window and type in “phdman”.
- Type in “mon sys”. A window will open with all the RDI’s that are configured on PHD for that specified server.
- The RDI’s must be in an active, active state for the state and interface heading. The rdistate must change between scan and idle mode, an indication that the interface is working correctly. In the same window in the top left corner the system state must be active. In the top right hand corner is the store process. Process state must be active and data store must be enabled if history needs to be stored in the archives.
In a PHD Management console window type in “**mon sec**” you can find information in this window:

- When PHD was last restarted.
- Tags currently defined in the system.
- Pool used.
- If the pool used is 100%, the tag no is all used and PHD will not work correctly

No new tags will be built into the PHD.
In a PHD Management console window type in: “rep sum”. A system summary will be given of the system state.

- Number of collecting tags.
- Total range errors.
- Data confidence.
In a PHD Management console window type in: “rep con xxx c:\Logs.txt”

- A window will open with the tags with the lowest confidence.
- The xxx specify the number of worst confidence tags to return.
- Export the data to text file using the optional last parameter to specify the path.
**Archives**

In a PHD Management console window type in: "\textit{sho a}"

- A list of the archives including the current archive will be listed.

![Figure 5 Archive Report](image)

**More Help**

If more information is needed, the "\textit{help}" command can be typed in the PHD window and a list of topics will be given.

**Server maintenance procedure**

PHD is installed under the following tree:

\texttt{<Install\ path> uniformance\phdserver.}

The log files and archive files may be on the same drive but most of the time it is on a separate drive.
Hard Drive

The hard drive must be checked for space availability. If the drive is full, PHD will not save the tags information and data can be corrupted.

Log Files

The log files must be checked for size. A good indication can be obtained from them e.g. what is wrong with a RDI that is not collecting data and tags that are not working. A new event log file can be created by typing in "create logfile" in the phdman window. If a log file of a RDI needs to be deleted, the RDI should be stopped before the log will be deleted.
The archives also need to be checked. They are set to a specific size and if there are problems with them, they will grow in size.

**Steps to create a new archive**

- In a PHD Management console window type “**sho arc**” (this will show the archive that is currently active and the other archives available).
- Set store: enable 0.
- Disconnect scanxxx.
- Create arc scanxx.
- Connect scanxxx scan active.
- Set store: enable 1.
This maintenance must be done on a weekly basis using the procedure and if problems are detected that can not be resolved, please contact the Honeywell support group at the contact numbers that you have been given.